September 13, 2001

Mr. Colin Maclean
BP Amoco Whiting Refinery
2815 Indianapolis Blvd.
Whiting, IN 46394

Re: Significant Source Modification No:
**089-14210-00453**

Dear Mr. Maclean:

BP Amoco Whiting Refinery applied for a Part 70 Operating Permit on September 30, 1996 for a petroleum refinery. An application to modify the source was received on March 28, 2001. Pursuant to 326 IAC 2-7-10.5, the following emission units are approved for construction and operation at the source:

Two (2) soil remediation units at the south tank field, each consisting of two (2) 460 cubic inch internal combustion engines, each equipped with a catalytic converter, rated at 156 brake-horsepower output, 0.450 million British thermal units per hour heat input each.

The Significant Source Modification approval will be incorporated into the pending Part 70 permit application pursuant to 326 IAC 2-7-10.5(l)(3). The source may begin operation upon issuance of the source modification approval.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter call (800) 451-6027, press 0 and ask for Frank P. Castelli , c/o OAQ, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, at 631-691-3395 or in Indiana at 1-800-451-6027 (ext 631-691-3395).

Sincerely,
Original signed by

Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

Attachments
FPC/MES
cc: File - Lake County
U.S. EPA, Region V
Lake County Health Department
Northwest Regional Office
Air Compliance Section Inspector - Ramesh Tejuja
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michele Boner

# PART 70 SIGNIFICANT SOURCE MODIFICATION AND EMISSION OFFSET REVIEW OFFICE OF AIR QUALITY

## BP Amoco Whiting Refinery
## 2815 Indianapolis Blvd.
## Whiting, IN 46394

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this approval.

This approval is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

| | |
|---|---|
| Source Modification No.: 089-14210-00453 | |
| Issued by: Original signed by<br>Paul Dubenetzky, Branch Chief<br>Office of Air Quality | Issuance Date:<br>September 12, 2001 |

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**SECTION A SOURCE SUMMARY**

This approval is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the emission units contained in conditions A.1 through A.2 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this approval pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

The Permittee owns and operates a stationary source.

| | |
|---|---|
| Responsible Official: | Colin Maclean |
| Source Address: | 2815 Indianapolis Blvd., Whiting, IN 46394 |
| Mailing Address: | 2815 Indianapolis Blvd., Mail Code 122, Whiting, IN 46394 |
| General Source Phone Number: | 219 - 473 - 3093 |
| SIC Code: | 2911 |
| County Location: | Lake |
| Source Location Status: | Severe Nonattainment for Ozone<br>Nonattainment for $SO_2$ and $PM_{10}$<br>Attainment for all other criteria pollutants |
| Source Status: | Part 70 Permit Program<br>Major under PSD and Emission Offset Rules;<br>Major Source, Section 112 of the Clean Air Act<br>1 of 28 Source Categories |

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source is approved to construct and operate the following emission units and pollution control devices:

Two (2) soil remediation units at the south tank field, each consisting of two (2) 460 cubic inch internal combustion engines, each equipped with a catalytic converter, rated at 156 brake-horsepower output, 0.450 million British thermal units per hour heat input each and exhausted to Stacks 1-1, 1-2, 2-1 and 2-2.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

This modification does not contain any insignificant activities.

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22);

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

## SECTION B GENERAL CONSTRUCTION CONDITIONS

B.1 Definitions [326 IAC 2-7-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, any applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

B.2 Effective Date of the Permit [40CFR 124]

Pursuant to 40 CFR 124.15, 40 CFR 124.19, and 40 CFR 124.20, the effective date of this permit will be thirty-three (33) days after issuance.

B.3 Revocation of Permits [326 IAC 2-2-8]

Pursuant to 326 IAC 2-2-8(a)(1), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of eighteen (18) months or more.

B.4 Significant Source Modification [326 IAC 2-7-10.5(h)]

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

(a) The attached affidavit of construction shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application. The emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM if constructed as proposed.

(b) If actual construction of the emissions units differs from the construction proposed in the application, the source may not begin operation until the source modification has been revised pursuant to 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.

(c) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.

(d) The Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.

(e) In the event that the Part 70 application is being processed at the same time as this application, the following additional procedures shall be followed for obtaining the right to operate:

(1) If the Part 70 draft permit has not gone on public notice, then the change/addition covered by the Significant Source Modification will be included in the Part 70 draft.

(2) If the Part 70 permit has gone thru final EPA proposal and would be issued ahead of the Significant Source Modification, the Significant Source Modification will go through a concurrent 45 day EPA review. Then the Significant Source Modification will be incorporated into the final Part 70 permit at the time of issuance.

(3) If the Part 70 permit has not gone through public notice, but has not gone through final EPA review and would be issued after the Significant Source Modification is issued, then the Modification would be added to the proposed Part 70 permit, and the Title V permit will be issued after EPA review.

## SECTION C GENERAL OPERATION CONDITIONS

C.1 Certification [326 IAC 2-7-4(f)] [326 IAC 2-7-6(1)] [326 IAC 2-7-5(3)(C)]

(a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification.

(c) A responsible official is defined at 326 IAC 2-7-1(34).

C.2 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)] [326 IAC 2-7-6(1) and (6)] [326 IAC 1-6-3]

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) when operation begins, including the following information on each facility:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If due to circumstances beyond the Permittee's control, the PMPs cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

The PMP and the PMP extension notification do not require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(b) The Permittee shall implement the PMPs as necessary to ensure that failure to implement the PMP does not cause or contribute to a violation of any limitation on emissions or potential to emit.

(c) A copy of the PMP shall be submitted to IDEM, OAQ, upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ, may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or contributes to any violation. The PMP does not require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(d) Records of preventive maintenance shall be retained for a period of at least five (5) years. These records shall be kept at the source location for a minimum of three (3) years. The

records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

C.3 Permit Amendment or Modification [326 IAC 2-7-11] [326 IAC 2-7-12]

(a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this permit.

(b) Any application requesting an amendment or modification of this approval shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

Any such application should be certified by the "responsible official" as defined by 326 IAC 2-7-1(34).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

C.4 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary alternative opacity limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of twenty percent (20%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.5 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

C.6 Fugitive Dust Emissions [326 IAC 6-1-11.1]

Pursuant to 326 IAC 6-1-11.1 (Lake County Fugitive Particulate Matter Control Requirements), the particulate matter emissions from source wide activities shall meet the following requirements:

(a) The average instantaneous opacity of fugitive particulate emissions from a paved road shall not exceed ten percent (10%).

(b) The average instantaneous opacity of fugitive particulate emissions from an unpaved road shall not exceed ten percent (10%).

(c) The average instantaneous opacity of fugitive particulate emissions from batch transfer shall not exceed ten percent (10%).

(d) The opacity of fugitive particulate emissions from continuous transfer of material onto and out of storage piles shall not exceed ten percent (10%) on a three (3) minute average.

(e) The opacity of fugitive particulate emissions from storage piles shall not exceed ten percent (10%) on a six (6) minute average.

(f) There shall be a zero (0) percent frequency of visible emission observations of a material during the inplant transportation of material by truck or rail at any time.

(g) The opacity of fugitive particulate emissions from the inplant transportation of material by front end loaders and skip hoists shall not exceed ten percent (10%).

(h) There shall be a zero (0) percent frequency of visible emission observations from a building enclosing all or part of the material processing equipment, except from a vent in the building.

(i) The $PM_{10}$ emissions from building vents shall not exceed twenty-two thousandths (0.022) grains per dry standard cubic foot and ten percent (10%) opacity.

(j) The opacity of particulate emissions from dust handling equipment shall not exceed ten percent (10%).

(k) Any facility or operation not specified in 326 IAC 6-1-11.1(d) shall meet a twenty percent (20%), three (3) minute average opacity standard.

C.7 Operation of Equipment [326 IAC 2-7-6(6)]

Except as otherwise provided by statute or rule, or in this permit, all air pollution control equipment listed in this permit and used to comply with an applicable requirement shall be operated at all times that the emission units vented to the control equipment are in operation.

**Testing Requirements [326 IAC 2-7-6(1)]**

C.8 Performance Testing [326 IAC 3-6] [326 IAC 2-1.1-11]

(a) Compliance testing on new emission units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this approval, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this approval, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(b) The Permittee shall notify IDEM, OAM of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by the IDEM, OAQ, if the source submits to IDEM, OAQ, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

**Compliance Requirements [326 IAC 2-1.1-11]**

C.9 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

**Compliance Monitoring Requirements [326 IAC 2-7-5(1)] [326 IAC 2-7-6(1)]**

C.10 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

If required by Section D, all monitoring and record keeping requirements shall be implemented when operation begins. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment.

**Corrective Actions and Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]**

C.11 Emergency Provisions [326 IAC 2-7-16]

(a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation, except as provided in 326 IAC 2-7-16.

(b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a health-based or technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:

(1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;

(2) The permitted facility was at the time being properly operated;

(3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;

(4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, Northwest Regional Office within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section), or
Telephone Number: 317-233-5674 (ask for Compliance Section)
Facsimile Number: 317-233-5967

Telephone Number: 219-881-6712 (Northwest Regional Office)
Facsimile Number: 219-881-6745 (Northwest Regional Office)

(5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:

(A) A description of the emergency;

(B) Any steps taken to mitigate the emissions; and

(C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(6) The Permittee immediately took all reasonable steps to correct the emergency.

(c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

(d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.

(e) IDEM, OAQ, may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4-(c)(10) be revised in response to an emergency.

(f) Failure to notify IDEM, OAQ, by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.

(g) Operations may continue during an emergency only if the following conditions are met:

(1) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

(2) If an emergency situation causes a deviation from a health-based limit, the Permittee may not continue to operate the affected emissions facilities unless:

(A) The Permittee immediately takes all reasonable steps to correct the emergency situation and to minimize emissions; and

(B) Continued operation of the facilities is necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value.

Any operation shall continue no longer than the minimum time required to prevent the situations identified in (g)(2)(B) of this condition.

C.12 Compliance Monitoring Plan - Failure to Take Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]

(a) The Permittee is required to implement a compliance monitoring plan to ensure that reasonable information is available to evaluate its continuous compliance with applicable requirements. The compliance monitoring plan can be either an entirely new document, consist in whole of information contained in other documents, or consist of a combination of new information and information contained in other documents. If the compliance monitoring plan incorporates by reference information contained in other documents, the Permittee shall identify as part of the compliance monitoring plan the documents in which the information is found. The elements of the compliance monitoring plan are:

(1) This condition;

(2) The Compliance Determination Requirements in Section D of this permit;

(3) The Compliance Monitoring Requirements in Section D of this permit;

(4) The Record Keeping and Reporting Requirements in Section C (General Record Keeping Requirements, and General Reporting Requirements) and in Section D of this permit; and

(5) A Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. CRP's shall be submitted to IDEM, OAQ upon request and shall be subject to review and approval by IDEM, OAQ. The CRP shall be prepared within ninety (90) days after issuance of this permit by the Permittee and maintained on site, and is comprised of:

(A) Reasonable response steps that may be implemented in the event that compliance related information indicates that a response step is needed pursuant to the requirements of Section D of this permit; and

(B) A time schedule for taking reasonable response steps including a schedule for devising additional response steps for situations that may not have been predicted.

(b) For each compliance monitoring condition of this permit, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition. Failure to take reasonable response steps may constitute a violation of the permit.

(c) Upon investigation of a compliance monitoring excursion, the Permittee is excused from taking further response steps for any of the following reasons:

(1) A false reading occurs due to the malfunction of the monitoring equipment. This shall be an excuse from taking further response steps providing that prompt action was taken to correct the monitoring equipment.

(2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for an administrative amendment to the permit, and such request has not been denied.

(3) An automatic measurement was taken when the process was not operating.

(4) The process has already returned or is returning to operating within "normal" parameters and no response steps are required.

(d) Records shall be kept of all instances in which the compliance related information was not met and of all response steps taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.

(e) All monitoring required in Section D shall be performed at all times the equipment is operating. If monitoring is required by Section D and the equipment is not operating, then the Permittee may record the fact that the equipment is not operating or perform the required monitoring.

(f) At its discretion, IDEM may excuse the Permittee's failure to perform the monitoring and record keeping as required by Section D, if the Permittee provides adequate justification and documents that such failures do not exceed five percent (5%) of the operating time in any quarter. Temporary, unscheduled unavailability of qualified staff shall be considered a valid reason for failure to perform the monitoring or record keeping requirements in Section D.

C.13 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5] [326 IAC 2-7-6]

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.

(b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.

(c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The documents submitted pursuant to this condition do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

**Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]**

C.14 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6]

(a) Records of all required data, reports and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location for a minimum of three (3) years.

The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

C.15 General Reporting Requirements [326 IAC 2-7-5(3)(C)]

(a) The reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(b) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

(c) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(d) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period. Reporting periods are based on calendar years.

**SECTION D.1 FACILITY OPERATION CONDITIONS**

**Facility Description [326 IAC 2-7-5(15)]: Soil Remediation Units**

Two (2) soil remediation units at the south tank field, each consisting of two (2) 460 cubic inch internal combustion engines, each equipped with a catalytic converter, rated at 156 brake-horsepower output, 0.450 million British thermal units per hour heat input each and exhausted to Stacks 1-1, 1-2, 2-1 and 2-2.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

**Emission Limitations and Standards [326 IAC 2-7-5(1)]**

D.1.1 Particulate Matter (PM) [326 IAC 6-1]

Pursuant to 326 IAC 6-1-2(a)(Nonattainment Area Particulate Limitations), particulate matter (PM) emissions from each of the four (4) engines shall be limited to 0.03 grains per dry standard cubic foot, equivalent to 0.0167 pounds of PM per hour at a flow rate of 65 dry standard cubic feet per minute.

D.1.2 Lowest Achievable Emission Rate (LAER) [326 IAC 2-3-3]

(a) Pursuant to 326 IAC 2-3-3, LAER has been determined to be the use of the nonselective catalytic reduction converters for each of the four (4) internal combustion engines.

(b) The potential to emit $NO_X$ shall not exceed 0.508 pounds per hour for each of the four (4) internal combustion engines, equivalent to a total of 8.91 tons of $NO_X$ per year.

D.1.3 Emission Offset [326 IAC 2-3-3(a)(5)(B)]

(a) Pursuant to the 326 IAC 2-3-3(a)(5)(B), the emission offset for the severe nonattainment area shall be at a ratio 1.3 to 1, equivalent to 11.6 tons of $NO_X$ per year.

(b) This 11.6 tons per year of $NO_X$ emissions offset is from the 91.0 ton per year credit from the Lubes Plant shutdown, effective December 1, 1998.

D.1.4 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for the four (4) internal combustion engines and their control devices.

**Compliance Determination Requirements**

D.1.5 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

Within 180 days of start-up, in order to demonstrate compliance with Condition D.1.1, the Permittee shall perform PM testing utilizing methods as approved by the Commissioner Testing shall be conducted in accordance with Section C- Performance Testing.

D.1.6 $NO_X$ and CO

In order to comply with Condition D.1.2, the nonselective catalytic reduction converters for $NO_X$ and CO control shall be in operation and control emissions from each of the four (4) internal combustion engines at all times that the internal combustion engine(s) are in operation.

**Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]**

D.1.7 Visible Emissions Notations

(a) Visible emission notations of the internal combustion engines Stack exhausts, 1-1, 1-2, 2-1 and 2-2 shall be performed once per shift during normal business days during daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.

D.1.8 LAER Monitoring Parameters [326 IAC 2-3-3(a)(2)]

The Permittee shall monitor the following parameters at least once per week at each engine when either of the two (2) soil remediation units is in operation at the south tank field in order to determine the destruction efficiency of the catalytic converters:

(a) Inlet stream temperature, $^{o}$F,

(b) Inlet stream flow rate, scfm,

(c) Auxiliary (propane) fuel usage, scfm,

(d) Outlet stack stream temperature, $^{o}$F,

(e) Stack stream flow rate, scfm,

(f) Oxygen stack stream concentration, ppm, and

(g) Stack stream VOC concentration, ppm.

Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the operating parameters shall be maintained within the range such that the minimum VOC destruction efficiency exceeds ninety percent (90%). The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the VOC destruction efficiency is outside of the above mentioned range for any one reading.

**Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)] [326 IAC 2-7-19]**

D.1.9 Record Keeping Requirements

(a) To document compliance with Condition D.1.7, the Permittee shall maintain records of the visible emission notations of the internal combustion engine stack exhausts 1-1, 1-2, 2-1 and 2-2.

(b) To document compliance with Condition D.1.8, the Permittee shall maintain records of the engine operating parameters once per week and the calculated destruction efficiencies.

(c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
# OFFICE OF AIR QUALITY
## COMPLIANCE DATA SECTION

### PART 70 SOURCE MODIFICATION CERTIFICATION

Source Name: BP Amoco Whiting Refinery
Source Address: 2815 Indianapolis Blvd, Whiting, IN 46394
Mailing Address: 2815 Indianapolis Blvd, Whiting, IN 46394
Source Modification No.: 089-14210-00453

**This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this approval.**

Please check what document is being certified:

**9** Test Result (specify) _____

**9** Report (specify) _____

**9** Notification (specify) _____

**9** Affidavit (specify) _____

**9** Other (specify) _____

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:

# Indiana Department of Environmental Management
# Office of Air Quality

Addendum to the
Technical Support Document for a Part 70 Significant Source Modification

| | |
|---|---|
| **Source Name:** | **BP Amoco Whiting Refinery** |
| **Source Location:** | **2815 Indianapolis Blvd., Whiting, IN 46394** |
| **County:** | **Lake** |
| **SIC Code:** | **2911** |
| **Source Modification:** | **SSM 089-14210-00453** |
| **Permit Reviewer:** | **Frank P. Castelli** |

On August 10, 2001, the Office of Air Quality (OAQ) had a notice published in the Gary Post Tribune, Merrillville, Indiana, stating that BP Amoco Whiting Refinery had applied for a Significant Source Modification to add two (2) soil remediation units to their existing source. The notice also stated that OAQ proposed to issue a Significant Source Modification for this operation and provided information on how the public could review the proposed Significant Source Modification and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this Significant Source Modification should be issued as proposed.

On August 27, 2001, Steven Loeschner, public citizen, submitted verbal comments by telephone regarding the proposed soil remediation project. A summary of his comments follow:

**Comment 1:**

Are the proposed engines going to be used to pull hydrocarbon vapors from the soil?

**Response 1:**

The proposed engines will pull and combust hydrocarbon vapors from the soil by creating a vacuum. Therefore, no changes are necessary to the proposed permit.

**Comment 2:**

Regarding potential particulate matter emissions, do the proposed engines employ a spark plug type of combustion or are they more like diesel engines?

**Response 2:**

The engines are not considered diesel engines and will employ spark plug combustion. The potential PM and $PM_{10}$ emissions from 8,760 hours of operation are only 0.293 tons per year (586 pounds per year). Therefore, no changes are necessary to the proposed permit.

Mail to: Permit Administration & Development Section
Office of Air Quality
100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015

BP Amoco Whiting Refinery
2815 Indianapolis Blvd., Mail Code 122
Whiting, Indiana 46394

**Affidavit of Construction**

I, _____, being duly sworn upon my oath, depose and say:
(Name of the Authorized Representative)

1. I live in _____ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.

2. I hold the position of _____ for _____.
(Title) (Company Name)

3. By virtue of my position with _____ , I have personal knowledge of the
(Company Name)
representations contained in this affidavit and am authorized to make these representations on behalf of _____ .
(Company Name)

4. I hereby certify that B P Amoco Whiting Refinery, 2815 Indianapolis Blvd., Whiting, Indiana 46394, completed construction of the two (2) soil remediation units consisting on four (4) internal combustion engines on _____ in conformity with the requirements and intent of the Significant Source Modification Permit application received by the Office of Air Quality on March 28, 2001 and as permitted pursuant to **Source Modification No. T 089-14210, Plant ID No. T 089-00453** issued on _____ .

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

_____
Signature

_____
Date

STATE OF INDIANA)
)SS
COUNTY OF _____ )

Subscribed and sworn to me, a notary public in and for _____ County and State of Indiana on this _____ day of _____, 20 _____ .

My Commission expires: _____ .

_____
Signature

_____
Name (typed or printed)

# Indiana Department of Environmental Management
# Office of Air Quality

## Technical Support Document (TSD) for a Part 70
## Significant Source Modification and Emission Offset Review

**Source Background and Description**

| | |
|---|---|
| **Source Name:** | **BP Amoco Whiting Refinery** |
| **Source Location:** | **2815 Indianapolis Blvd., Whiting, IN 46394** |
| **County:** | **Lake** |
| **SIC Code:** | **2911** |
| **Operation Permit No.:** | **T 089-6741-00453** |
| **Operation Permit Issuance Date:** | **Yet Issued** |
| **Significant Source Modification No.:** | **SSM 089-14210-00453** |
| **Permit Reviewer:** | **Frank P. Castelli** |

The Office of Air Quality (OAQ) has reviewed a modification application from the BP Amoco Whiting Refinery relating to the construction and operation of the following emission units and pollution control devices:

Two (2) soil remediation units at the south tank field, each consisting of two (2) 460 cubic inch internal combustion engines, each equipped with a catalytic converter, rated at 156 brake-horsepower output, 0.450 million British thermal units per hour heat input each and exhausted to Stacks 1-1, 1-2, 2-1 and 2-2.

**History**

On March 28, 2001, BP Amoco Whiting Refinery submitted an application to the IDEM, OAQ requesting to add two (2) soil remediation units at the south tank field, each consisting of two (2) internal combustion engines to their existing plant.

**Source Definition**

This petroleum refining, storage and distribution operation consists of two (2) plants:

(a) The Refinery is located at 2815 Indianapolis Blvd., Whiting, Indiana 46394; and

(b) The Marketing Terminal is located at 2530 Indianapolis Blvd., Whiting, Indiana 46394.

Since the two (2) plants are located on contiguous properties and owned by the same company, they will be considered one (1) source with a plant identification no: 089-00453.

**Air Pollution Control Justification as an Integral Part of the Process**

All potential emissions from this proposed modification will be from the exhaust of the engines to be installed as part of the soil extraction system. The hydrocarbon vapors that will be the input to the engines are not considered potential emissions because the vapors will be pulled from the soil by the engines. The soil extraction system is not using a separate aeration system to remove the vapors from the soil. Therefore, there would not be any air emissions if the engines were not

operating. The engines will be considered the emission units and not control devices for emissions of hydrocarbon vapors.

**Enforcement Issue**

There are no enforcement actions pending.

**Stack Summary**

| Stack ID | Operation | Height (feet) | Diameter (feet) | Flow Rate (dscfm) | Temperature (EF) |
|---|---|---|---|---|---|
| 1-1 | Unit #1 - Engine #1 | 8.5 | 0.25 | 65 | 775 |
| 1-2 | Unit #1 - Engine #2 | 8.5 | 0.25 | 65 | 775 |
| 2-1 | Unit #2 - Engine #1 | 8.5 | 0.25 | 65 | 775 |
| 2-2 | Unit #2 - Engine #2 | 8.5 | 0.25 | 65 | 775 |

**Recommendation**

The staff recommends to the Commissioner that the Part 70 Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on March 28, 2001 with additional information received on May 21, June 4 and 11 as well as July 19, 2001.

**Emission Calculations**

See pages 1 and 2 of Appendix A of this document for detailed emissions calculations. While the engines may use propane as a supplemental fuel, when necessary, the potential emission calculations have assumed that the extracted hydrocarbons will be burned at all times. This is a worse case assumption that maximizes the potential to emit.

**Potential To Emit of Modification**

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA.”

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

| Pollutant | Potential To Emit (tons/year) |
|---|---|
| PM | 0.293 |
| $PM_{10}$ | 0.293 |
| $SO_2$ | 1.59 |
| VOC | 3.94 |
| CO | 5.44 |
| $NO_X$ | 8.91* |

* The potential to emit $NO_X$ before nonselective catalytic control is greater than 8.91 tons per year. The 8.91 tons of $NO_X$ per year is the potential to emit with the nonselective catalytic control.

| HAPs | Potential To Emit (tons/year) |
|---|---|
| Lead | 0.245 |
| Toluene | 0.672 |
| Benzene | 0.192 |
| Ethyl benzene | 0.193 |
| Xylene | 0.733 |
| TOTAL | 2.04 |

**Justification for Modification**

(a) The Part 70 Operating Permit is being modified through a Part 70 Significant Source Modification to a yet to be issued Part 70 Operating Permit. This modification would be considered a minor source modification pursuant to 326 IAC 2-7-10.5(d)(10) since the $NO_X$ potential-to-emit (PTE) in Lake County exceeds twenty-five (25) pounds per day. However, since the $NO_X$ increase exceeds the de minimis level of twenty-five (25) tons per year over the five (5) year period, 326 IAC 2-3 is applicable. Therefore, the proposed construction is a significant Part 70 Operating Permit modification pursuant to 326 IAC 2-7-10.5(f)(1). Note that the source has agreed not to put the application on hold awaiting the approval of the proposed rule change that will eliminate $NO_X$ from the de minimis evaluation.

(b) Since the Part 70 Operating Permit for this source has not been issued yet, the approval of this Significant Source Modification will allow the source to construct and operate.

**County Attainment Status**

The source is located in Lake County.

| Pollutant | Status |
|---|---|
| $PM_{10}$ | nonattainment |
| $SO_2$ | nonattainment |
| $NO_2$ | attainment |
| Ozone | severe nonattainment |
| CO | maintenance |
| Lead | attainment |

(a) Volatile organic compounds (VOC) and oxides of nitrogen ($NO_X$) are precursors for the formation of ozone. Therefore, VOC and $NO_X$ emissions are considered when evaluating the rule applicability relating to the ozone standards. Lake County has been designated as severe nonattainment for ozone. Therefore, VOC and $NO_X$ emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.

(b) Lake County has been classified as nonattainment for $SO_2$ and $PM_{10}$. Therefore, these emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.

(c) Lake County has been classified as attainment or unclassifiable for the remaining criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

**Source Status**

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

| Pollutant | Emissions (tons/year) |
|---|---|
| PM | - |
| $PM_{10}$ | - |
| $SO_2$ | - |
| VOC | greater than 250 |
| CO | - |
| $NO_X$ | - |

(a) This existing source is a major stationary source because VOC, a regulated pollutant is emitted at a rate of twenty-five (25) tons per year or more in Lake County, and it is one of the 28 listed source categories.

(b) These emissions are based upon the 1999 IDEM, OAM emission inventory.

**Potential to Emit of Modification After Issuance**

The table below summarizes the potential to emit, reflecting all limits, of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

| Pollutant | PM (tons/yr) | $PM_{10}$ (tons/yr) | $SO_2$ (tons/yr) | VOC (tons/yr) | CO (tons/yr) | $NO_X$ (tons/yr) |
|---|---|---|---|---|---|---|
| Proposed Modification | 0.293 | 0.293 | 1.59 | 3.94 | 5.44 | 8.91 |
| Offset Significant Level | 25 | 15 | 40 | 25 | 100 | 25 |

Emission Offset requirements need to consider the requirements of 326 IAC 2-3-1(j), which requires that all other net emissions increases for $NO_x$ and VOC at the source over a five- (5-) year period be considered to determine if the increases are “De Minimis” and, therefore, not subject to NSR requirements.

The following table lists the applicable project emissions during the last five (5) years and changes in the potential to emit each pollutant as well as the effective date, the permit number and changes in the emissions bank.

**Applicable Project Emissions**

| | tons per year | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pollutant Area Status Banked Emissions | PM SIP | $PM_{10}$ NSR | $SO_2$ NSR | VOC NSR | $NO_X$ NSR | $NO_2$ PSD | CO PSD | Effective Date | CP Number |
| New F-100 Furnace-Docks | 0.3 | 0.3 | 0.0 | 0.3 | 4.4 | 4.4 | 1.9 | 11/19/1997 | 089-9003-00003 |
| TK 6125 | 0.0 | 0.0 | 0.0 | 0.1 | 0.7 | 0.7 | 0.2 | 1/1/1998 | (a) |
| TK 3602 Conversion | | | | 0.4 | | | | 1/22/1998 | (a) |
| TK 6126 | 0.0 | 0.0 | 0.0 | 0.1 | 0.7 | 0.7 | 0.2 | 1/1/1999 | (a) |
| Alky Splitter | | | | 1.2 | | | | 3/1/1999 | (a) |
| TK3604 Conversion | | | | 0.3 | | | | 8/23/2000 | (a) |
| TK 6127 | 0.0 | 0.0 | 0.0 | 0.1 | 0.5 | 0.5 | 0.2 | 9/30/2000 | (a) |
| SBS TGU | 3.7 | 3.7 | 39.4 | 3.6 | 17.8 | 17.8 | 0.0 | Pending | 089-13846-00003 |
| 3 SPS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | Pending | 089-14239-00003 |
| IC Engines (b) | 0.3 | 0.3 | 1.6 | 4.0 | 8.9 | 8.9 | 5.4 | Pending | 089-14210-00003 |
| Total (Bank increases after 6/1/97) | 4.4 | 4.4 | 41.2 | 10.0 | 33.0 | 33.0 | 7.8 | | |

Notes: (a) Records not available

(b) The $NO_X$ increases exceed 25 tons per 5 yrs, the proposed engines require a 1.3:1 emission offset, equivalent to 11.6 tons of $NO_X$.

Therefore, the addition of the potential to emit $NO_X$ (8.9 tons per year) from this proposed modification to the existing increases in the bank as well as the pending increases makes this modification not de minimis. The total $NO_X$ increase is thirty three (33.0) tons per year which exceeds the de minimis limit of twenty five (25) tons per year. Therefore, the source is subject to the NSR requirements of 326 IAC 2-3-3(a)(5)(B) which requires an $NO_X$ offset of 1.3 to 1 which is equivalent to 8.9 times 1.3 or 11.6 tons per year. In addition, pursuant to 326 IAC 2-3-3(a)(2) the source has chosen to demonstrate that the proposed modification is the Lowest Achievable Emission Rate (LAER) for the soil remediation project.

**Discussion of LAER for IC Engine**

Control measures for internal combustion engines are primarily designed to reduce emissions of $NO_X$ and CO. The controls proposed for the units are a catalytic converter (NSCR - nonselective catalytic reduction). In order to determine if this represents the lowest achievable emissions rate (LAER) for the proposed units, USEPA's RACT/BACT/ LAER Clearinghouse (RBLC) was investigated for similar units. The entries for gasoline- and propane-fired internal combustion engines that are of similar size to those proposed were reviewed. The controls listed for these units include a three-way catalytic converter and the fuel specification of propane, the fuel proposed to supplement hydrocarbons when operating the internal combustion engines. NSCR is commonly referred to as a three-way catalyst system, because the reactor simultaneously reduces $NO_X$, CO, and hydrocarbons. The proposed NSCR is the most stringent control listed in the RBLC.

The California Air Resources Board (CARB) BACT Clearinghouse Database was also investigated for propane-fired internal combustion engines (listed under alternative fuels). There are five entries, including one that uses LPG as an auxiliary fuel to tank vapors. For all of the entries the control listed is a three-way catalyst for reducing $NO_X$, CO, and VOC/HC. The control listed for PM and $SO_X$ is low sulfur fuel (i.e., propane). As per entries in the RBLC and sources permitted in California, the proposed catalytic converter and the use of propane represents LAER.

Based upon this review the proposed installation of catalytic converters for $NO_X$ control satisfactorily meets the requirements of LAER. The attached table summarizes the clearinghouse data discussed above.

**RACT/BACT/LAER Clearinghouse Entries for Small Internal Combustion Engines**

| RBLCID | CA-0421 | CA-0421 | CA-0421 | CA-0421 | CA-0421 |
|---|---|---|---|---|---|
| FACILITY | SHELL PIPELINE | SHELL PIPELINE | SHELL PIPELINE | SHELL PIPELINE | SHELL PIPELINE |
| PERM DATE | 11/15/91 | 11/15/91 | 11/15/91 | 11/15/91 | 11/15/91 |
| PROCESS | Generator, emergency, propane fired | Generator, emergency, propane fired | Generator, emergency, propane fired | Generator, emergency, propane fired | Generator, emergency, propane fired |
| THRUPUT | 82 | 82 | 82 | 82 | 82 |
| THRUPUT UNIT | BHP | BHP | BHP | BHP | BHP |
| POLLUTANT | $NO_X$ | VOC | Compressor, IC, 2 ea | VE | $SO_X$ |
| PRIMEMISS | 0.28 | 0.28 | 0.37 | 0 | 0.1 |
| PRIME UNIT | LB/H | LB/H | LB/H | % Opacity | LB/H as $SO_2$ |

| | | | | | |
|---|---|---|---|---|---|
| CONTROL BULK STORAGE AND WHOLESALE DISTRIBUTION OF PETROLEUM PRODUCTS S | 3-Way Catalytic Converter | 3-Way Catalytic Converter | 3-Way Catalytic Converter | Positive Crankcase Vent Valve | Fuel Spec: Propane Fuel, Low S |
| PCT EFFICIENCY | 60 | 10 | 96 | 100 | 0 |
| BASIS | BACT-PSD | BACT-PSD | BACT-PSD | BACT-PSD | BACT-PSD |

| RBLCID | CA-0465 | CA-0465 | CA-0465 | CA-0465 |
|---|---|---|---|---|
| FACILITY | SHELL PIPELINE | SHELL PIPELINE | SHELL PIPELINE | SHELL PIPELINE |
| PERM DATE | 11/15/91 | 11/15/91 | 11/15/91 | 11/15/91 |
| PROCESS | Engine-Generator, IC Emergency (Propane) | Engine-Generator, IC Emergency (Propane) | Engine-Generator, IC Emergency (Propane) | Engine-Generator, IC Emergency (Propane) |
| THRUPUT | 82 | 82 | 82 | 82 |
| THRUPUT UNIT | HP | HP | HP | HP |
| POLLUTANT | $NO_X$ | HC | CO | $SO_X$ |
| PRIMEMISS | 0 | 0 | 0 | 0 |
| PRIME UNIT | | | | |
| CONTROL BULK STORAGE AND WHOLESALE DISTRIBUTION OF PETROLEUM PRODUCTS S | 3-Way Catalytic Converter | 3-Way Catalytic Converter, Positive Crankcase Ventilation | 3-Way Catalytic Converter | Fuel Spec: Low Sulfur Fuel |
| PCT EFFICIENCY | 60 | 10 | 96 | 0 |
| BASIS | BACT-PSD | BACT-PSD | BACT-PSD | BACT-PSD |

| RBLCID | CA-0540 | CA-0642 | CA-0642 |
|---|---|---|---|
| FACILITY | KENNETH HARPER | WESTERN | WESTERN |
| PERM DATE | 5/10/91 | 5/2/95 | 5/2/95 |
| PROCESS | Engine, IC Propane | Two Ford LSG-875 Gas-Fired IC Engines (LPG Back-up) | Two Ford LSG-875 Gas-Fired IC Engines (LPG Back-up) |
| THRUPUT | 300 | 175 | 175 |
| THRUPUT UNIT | CID | HP per Engine | HP per Engine |
| POLLUTANT | HC | Oxides of Nitrogen | Oxides of Sulfur |
| PRIMEMISS | 0 | 50 | 0.08 |
| PRIME UNIT | | PPMVD at 15% Oxygen | LBM/MMBTU |
| CONTROL BULK STORAGE AND WHOLESALE DISTRIBUTION OF PETROLEUM PRODUCTS S | Oxidation Catalyst | Carsound Two-Stage Catalyst and Air-Fuel Monitoring | Fuel spec: LPG as Auxiliary Fuel to Tank Vapors |
| PCT EFFICIENCY | 98.6 | 0 | 0 |
| BASIS | BACT-Other | BACT-Other | BACT-Other |

Therefore, this proposed modification to an existing major stationary source is major because the emissions increase is greater than the de minimis level for $NO_X$. Therefore, pursuant to 326 IAC 2-3, the Emission Offset requirements have been satisfied.

**Part 70 Permit Determination**

326 IAC 2-7 (Part 70 Permit Program)

This existing source has submitted their Part 70 (T 089-6741) application on September 30, 1996. The four (4) internal combustion engines being reviewed under this permit shall be incorporated in the submitted Part 70 application.

**Federal Rule Applicability**

(a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) applicable to this proposed modification.

(b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14 and 40 CFR Part 63) applicable to this proposed modification.

**State Rule Applicability - Individual Facilities**

326 IAC 2-3 (Emission Offset)

(a) The proposed modification is a major modification pursuant to this rule because the additional increase in the potential to emit $NO_X$ causes the bank increases to exceed twenty-five (25) tons and therefore was not de minimis. Thus an offset of 1.3 to 1 is required, equivalent to 11.6 tons of $NO_X$. The catalytic converters on the internal combustion engines have been determined to be LAER.

(b) The emission offset of 11.6 tons per year of $NO_X$ is being taken from the 91.0 tons per year of $NO_X$ reduction associated with the Lubes Plant shutdown effective December 1, 1998.

(c) The existing major sources owned or operated by the applicant in the State of Indiana are BP Whiting Refinery and the Amoco Oil Company - Lafayette Marketing Terminal.

Pursuant to 326 IAC 2-3-3 (a)(3), the applicant has demonstrated that both of these major sources are in compliance with all applicable emission limitations and standards contained in the Clean Air Act.

(d) Pursuant to 326 IAC 2-3-3 (a)(4), the applicant submitted an analysis of alternative sites, sizes, production processes, and environmental control techniques which demonstrates that benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification. These items are summarized below:

(1) Alternate Sites

Since the internal combustion engine (ICE) units are to be used for remediation of petroleum hydrocarbon contaminated soil, alternate site selection is not applicable.

(2) Appropriate Size Determination

The Phoenix Model 1000 controller for the ICE units was selected based on the ability of the control system to continuously monitor the appropriate air-to-fuel ratio and make adjustments accordingly. The Phoenix 1000 maintains control over three (3) independent valves, therefore making it more suitable to changing condi-

tions that will be encountered during soil remediation.

(3) Appropriate Process and Environmental Control Selection

A preliminary site characterization summary was prepared to determine the feasibility of potential technologies. The site characterization was completed to facilitate a more efficient and accurate characterization of the contaminated site.

The site characterization included an evaluation of the contaminated area parameters such as clay content, humic content, metals content, pH, and water content.

Soil Vapor Extraction was determined to be the preferred technology choice for removing organic contaminates from polluted soil zones. Soil Vapor Extraction has proven to be most effective in removing organic contaminants in three different zones: free product; dissolved in the groundwater, or as vapors in the vados zone.

(4) Social Costs

Alternate remediation technologies were evaluated in detail with respect to various statutory requirements: Reduction of toxicity, mobility or volume of the hydrocarbon plume; short-term effectiveness; long-term effectiveness and permanence; Implementability; Cost; IDEM Bureau of Land acceptance; and overall protection of the environment. When selecting a technology for remediation CERCLA §9621 (b)(1) states that "remedial actions, in which treatment permanently and significantly reduces the volume, toxicity, or mobility of the hazardous substances, pollutants, and contaminants, is a principal element (in technology selection) and is preferred over remedial actions not involving such treatment." Therefore, the ICE units are the societal control of choice for this remediation.

326 IAC 6-1 (Nonattainment area limitations)

Although the source is specifically listed in 326 IAC 6-1-10.1 (Lake County $PM_{10}$ emission requirements), the two (2) soil remediation units consisting of four (4) internal combustion engines are not specifically listed for the BP Amoco Whiting Refinery. Therefore pursuant to 326 IAC 6-1-2(a), the particulate matter (PM) emissions shall be limited to 0.03 grains per dry standard foot of outlet air.

The stated flow rate is 65 dry standard cubic feet per minute per engine exhaust. Multiplying this flow rate by the grain loading limit of 0.03 grains per dry standard cubic foot of exhaust air x 60 minutes per hour x 1 pound per 7,000 grains = an allowable PM emission rate of 0.0167 pounds per hour. The applicant has stated that the engines will comply with this PM limitation.

**Testing Requirements**

Testing of one (1) of the four (1) internal combustion engines is required to show compliance with 326 IAC 6-1 grain loading limit of 0.03 grains per dry standard cubic foot of exhaust air. This performance test is required since the PM emissions in the potential to emit were based on the allowable PM emissions based on 326 IAC 6-1 rather than the PM emission factor for internal combustion engines from AP-42 of 0.10 pounds of PM per million British thermal units heat input.

**State Rule Applicability - Insignificant Activities**

There are no insignificant activities associated with this modification.

**Compliance Requirements**

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this proposed modification are as follows:

The four (4) internal combustion engines have applicable compliance monitoring conditions as specified below.

(a) Visible emissions notations of the internal combustion engine stack exhausts 1-1, 1-2, 2-1 and 2-2 shall be performed once per shift during normal business days during daylight operations when exhausting to the atmosphere.. A trained employee will record whether emissions are normal or abnormal. For processes operated continuously "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions. A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

(b) The Permittee shall monitor the following parameters at least once per week at each engine when either of the two (2) soil remediation units is in operation at the south tank field in order to determine the destruction efficiency of the catalytic converters:

(1) Inlet stream temperature, ºF,

(2) Inlet stream flow rate, scfm,

(3) Auxiliary (propane) fuel usage, scfm,

(4) Outlet stack stream temperature, ºF,

(5) Stack stream flow rate, scfm,

(6) Oxygen stack stream concentration, ppm, and

(7) Stack stream VOC concentration, ppm.

Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the operating parameters shall be maintained within the range such that the minimum VOC destruction efficiency exceeds ninety percent (90%). The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the VOC destruction efficiency is outside of the above mentioned range for any one reading.

These monitoring conditions are necessary because for the catalytic converters must operate properly to ensure compliance with 326 IAC 2-3 and 326 IAC 2-7.

**Conclusion**

The construction and operation of these soil remediation units shall be subject to the conditions of the attached proposed Significant Source Modification No. 089-14210-00453.

**Appendix A: Potential Emission Calculations**
**Raw Materials From Extraction Wells**

**Company Name:** **BP Amoco Whiting Refinery**
**Address City IN Zip:** **2815 Indianapolis Blvd., Whiting, Indiana 46394**
**Source Modification No.:** **089-14210**
**Plt ID:** **089-00453**
**Reviewer:** **Frank P. Castelli**
**Date:** **March 28, 2001**

**Case 1** Maximum Raw Material Input to Internal Combustion Engines Fueled Exclusively by Recovered Hydrocarbon Vapors — **99.00% combustion efficiency**

| | | Total Hydrocarbon | Benzene | After Combustion | Toluene | After Combustion | Ethylbenzene | After Combustion | Xylenes | After Combustion | After Combustion Total HAPs |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | lb/hr | Wt % | lb/hr | Wt % | lb/hr | Wt % | lb/hr | Wt % | lb/hr | lbs/hr |
| Unit 1 | Engine 1 | 22.82 | 4.81 | 0.011 | 16.82 | 0.038 | 4.83 | 0.011 | 18.331 | 0.042 | 0.102 |
| | Engine 2 | 22.82 | 4.81 | 0.011 | 16.82 | 0.038 | 4.83 | 0.011 | 18.331 | 0.042 | 0.102 |
| Unit 2 | Engine 1 | 22.82 | 4.81 | 0.011 | 16.82 | 0.038 | 4.83 | 0.011 | 18.331 | 0.042 | 0.102 |
| | Engine 2 | 22.82 | 4.81 | 0.011 | 16.82 | 0.038 | 4.83 | 0.011 | 18.331 | 0.042 | 0.102 |
| | Subtotal | 91.3 | 19.2 | 0.044 | 67.3 | 0.154 | 19.3 | 0.044 | 73.32 | 0.167 | 0.409 |
| | **tons/yr** | | | **0.192** | | **0.672** | | **0.193** | | **0.733** | **1.79** |

**Case 2** Maximum Raw Material Input to Internal Combustion Engines Fueled by a 50/50 split of Recovered Hydrocarbon Vapors and Propane — **99.00% combustion efficiency**

| | | Total Hydrocarbon | Benzene | After Combustion | Toluene | After Combustion | Ethylbenzene | After Combustion | Xylenes | After Combustion | After Combustion Total HAPs |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | lb/hr | Wt % | lb/hr | Wt % | lb/hr | Wt % | lb/hr | Wt % | lb/hr | lbs/hr |
| Unit 1 | Engine 1 | 11.41 | 4.81 | 0.005 | 16.82 | 0.019 | 4.83 | 0.006 | 18.331 | 0.021 | 0.051 |
| | Engine 2 | 11.41 | 4.81 | 0.005 | 16.82 | 0.019 | 4.83 | 0.006 | 18.331 | 0.021 | 0.051 |
| Unit 2 | Engine 1 | 11.41 | 4.81 | 0.005 | 16.82 | 0.019 | 4.83 | 0.006 | 18.331 | 0.021 | 0.051 |
| | Engine 2 | 11.41 | 4.81 | 0.005 | 16.82 | 0.019 | 4.83 | 0.006 | 18.331 | 0.021 | 0.051 |
| | Subtotal | 45.6 | 19.2 | 0.022 | 67.3 | 0.077 | 19.3 | 0.022 | 73.32 | 0.084 | 0.204 |
| | tons/yr | | | 0.096 | | 0.336 | | 0.097 | | 0.366 | 0.895 |

**Propane - 100%**

| | | mmBtu/hr | NOx Emis Factor lbs/mmBtu | NOx Emissions tons/yr | CO Emis Factor lbs/mmBtu | CO Emissions tons/yr | PM=PM10 Emis Factor lbs/mmBtu | PM=PM10 Emissions tons/yr | SO2 Emis Factor lbs/mmBtu | SO2 Emissions tons/yr | TOC Emis Factor lbs/mmBtu | TOC Emissions tons/yr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit 1 | Engine 1 | 0.45 | 0.2099 | 0.413713 | 0.035 | 0.068985 | 0.0066 | 0.013009 | 0.0002 | 0.000394 | 0.0055 | 0.010841 |
| | Engine 2 | 0.45 | 0.2099 | 0.413713 | 0.035 | 0.068985 | 0.0066 | 0.013009 | 0.0002 | 0.000394 | 0.0055 | 0.010841 |
| Unit 2 | Engine 1 | 0.45 | 0.2099 | 0.413713 | 0.035 | 0.068985 | 0.0066 | 0.013009 | 0.0002 | 0.000394 | 0.0055 | 0.010841 |
| | Engine 2 | 0.45 | 0.2099 | 0.413713 | 0.035 | 0.068985 | 0.0066 | 0.013009 | 0.0002 | 0.000394 | 0.0055 | 0.010841 |
| | Total | | | 1.654852 | | 0.27594 | | 0.052034 | | 0.001577 | | 0.043362 |

S = grains/100 cf

NOx EF = 19 lbs/1000 gal or 19 lbs/1000 gals / 90,500 Btu/gal = 0.2099 lbs/mmBtu — AP-42 Chapter 1.5
CO EF = 3.2 lbs/1000 gal or 3.2 lbs/1000 gals / 90,500 Btu/gal = 0.035 lbs/mmBtu — AP-42 Chapter 1.5
PM EF = 0.6 lbs/1000 gal or 0.6 lbs/1000 gals / 90,500 Btu/gal = 0.0066 lbs/mmBtu — AP-42 Chapter 1.5
SO2 EF = 0.10S lbs/1000 gal or 0.1 * 0.2 lbs/1000 gals / 90,500 Btu/gal = 0.0002 lbs/mmBtu — AP-42 Chapter 1.5
TOC EF = 0.5 lbs/1000 gal or 0.5 lbs/1000 gals / 90,500 Btu/gal = 0.0055 lbs/mmBtu — AP-42 Chapter 1.5

Flow Rate 65 dscfm per engine

**Hydrocarbon Vapors - 100%**

| | | | NOx Emis Factor | NOx Emissions | CO Emis Factor | CO Emissions | Allowable PM & PM=PM10 | PM=PM10 Emissions | SO2 | SO2 Emissions | TOC Emis Factor | TOC Emissions | Lead | Lead Emissions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mmBtu/hr | lbs/mmBtu | tons/yr | lbs/mmBtu | tons/yr | gr/dscf | tons/yr | lbs/hr | tons/yr | lbs/mmBtu | tons/yr | lbs/hr | tons/yr |
| Unit 1 | Engine 1 | 0.45 | 1.13 | 2.227 | 0.69 | 1.360 | 0.03 | 0.073 | 0.091 | 0.399 | 0.5 | 0.986 | 0.014 | 0.061 |
| | Engine 2 | 0.45 | 1.13 | 2.227 | 0.69 | 1.360 | 0.03 | 0.073 | 0.091 | 0.399 | 0.5 | 0.986 | 0.014 | 0.061 |
| Unit 2 | Engine 1 | 0.45 | 1.13 | 2.227 | 0.69 | 1.360 | 0.03 | 0.073 | 0.091 | 0.399 | 0.5 | 0.986 | 0.014 | 0.061 |
| | Engine 2 | 0.45 | 1.13 | 2.227 | 0.69 | 1.360 | 0.03 | 0.073 | 0.091 | 0.399 | 0.5 | 0.986 | 0.014 | 0.061 |
| **Worst Case** | | | | **8.909** | | **5.440** | | **0.293** | | **1.594** | | **3.942** | | **0.245** |

Hydrocarbon Characteristics: NOx = 1000 ppm, CO = 1000 ppm, TOC = 140 ppm, Max S = 4000 ppm or 0.4%, Lead = 600 ppm or 0.06%

The following assumptions were made based on similar application pulling high concentrations of hydrocarbons from soil with an engine operating at 2000 RPM
Well point flow = 2883 scfm, hydrocarbon content = 50,000 ppmv, contaminant MW = 100 lb/lb-mole

Recovered hydrocarbon from anticipated light ultraformate plume assumed to have similar physical properties as gasoline, density 7.1 lbs/gal, heat content = 140,000 Btu/gal
PM and PM-10 emissions reflect the allowable emissions pursuant to 326 IAC 6-1
AP-42 Emission Factor for TOC for gasoline engines Chapter 3.3
Anticipated SO2 and lead emissions based on characteristics of product recovery plume in south tank field.